COMFORT *with* ECONOMY IN HEATING

RICHARDSON & BOYNTON COMPANY
New York

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COMFORT *with* ECONOMY IN *HEATING*

HEATING AND COOKING APPARATUS FOR EVERY REQUIREMENT

COMFORT *with* ECONOMY
IN
HEATING

WARM AIR HEATERS
STEAM BOILERS
VAPOR-VACUUM-PRESSURE BOILERS
HOT WATER BOILERS
IRON AND WATER HEATERS
and
COOKING RANGES

Established 1837

RICHARDSON & BOYNTON CO.
Manufacturers

New York Philadelphia Chicago Boston
Providence, R. I. Rochester, N. Y.
Dover, N. J. Irvington, N. J.

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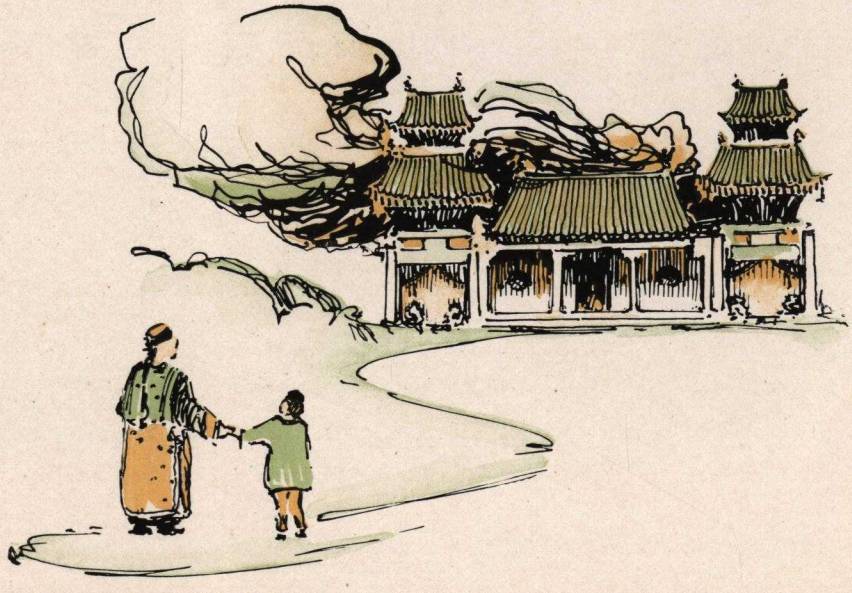
Ho Ti and his son Bo Bo in Charles Lamb's story of "Roast Pig," had been accustomed, like their neighbors, to eat their meat raw until one day they found their pig richly roasted in the ashes of their house which had burned accidentally. They so enjoyed the taste that they set their second house afire in order to have another feast, and soon all the other house-owners were doing likewise.

In this Twentieth Century America, thousands of house-owners similarly set expensive coal afire in order to get a modicum of comfort.

Comfort can be expensive. Comfort can be economical. Expense may produce physical comfort, but it does not give mental comfort. Correct heating and cooking apparatus assure complete comfort at only a nominal cost for operation. And that is—perfect satisfaction



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The COST *of* COMFORT

THE heating system determines the value of the house—its value for living, its value as a permanent investment, and its value for selling if it ever is to be sold. The worst mistake that a house-owner can make is to "skimp" on this essential.

A good system does not mean an extravagant system. It means only the prudent avoidance of the cheapness which saddles the home with an inadequate heating plant and entails endless puttering, discomfort, and a waste of coal which would more than pay for a good system.

The real cost of comfort is in the "over-head"—the cost of daily operation. Dirt, repairs and wasted time alone are important items in this cost, but the big cost, that is noticeable daily, is the drain on money caused by the fuel-consumption. There is nothing that causes more bitter regret than a mistake in selecting a heating system. It is a mistake that never ceases to penalize the person who has made it; and a grave feature of it is that it is almost impossible to remedy it except at considerable expense.

The right heating system is one that does not cost a single dollar more than is absolutely necessary to give complete service. The policy of the Richardson & Boynton Company is to protect the purchaser against installing a more costly system than he needs. Experts are at his service to study his particular requirements in detail and recommend that equipment which shall be most economical in first cost, and which in permanent use shall save fuel and trouble.

WHAT IS MORE CONDUCIVE TO THE ENJOYMENT OF A REAL HOME THAN *Comfort in it?*

The GUARANTY *of* COMFORT

HEATERS, boilers, radiators, pipes and other equipments of a heating plant in general superficial aspect are largely alike to the inexperienced eye. It is true that there is an impression of quality about a good system that even the non-technical man can see; but the vital merits or demerits appear only after the system is installed and in action.

Efficiency depends on almost innumerable points, great and small. The correct proportionate areas of grate surfaces, heating surfaces, flues, pipes, etc.; the durability of all the construction; the science that draws all available heat from the coal—for all these and many other values the purchaser depends in the final analysis on the reputation and known ability of the manufacturer.

The Richardson & Boynton Company is a large organization whose name is a part of the story of modern industrial science. But this growth has been gradual, and today as in its beginnings eighty years ago, the organization holds fast to the original principle that has made it what it is; the principle of giving true service to the smallest customer as to the largest, and of standing faithfully behind everything and anything that it sells.

Though its plants and facilities are modern, the experience and policy of its long existence remain its valued assets. It maintains a working force that preserves these assets unimpaired by producing the best work attainable, being encouraged by good conditions of employment, good raw material and labor-saving power tools, and effective co-operation between all branches.

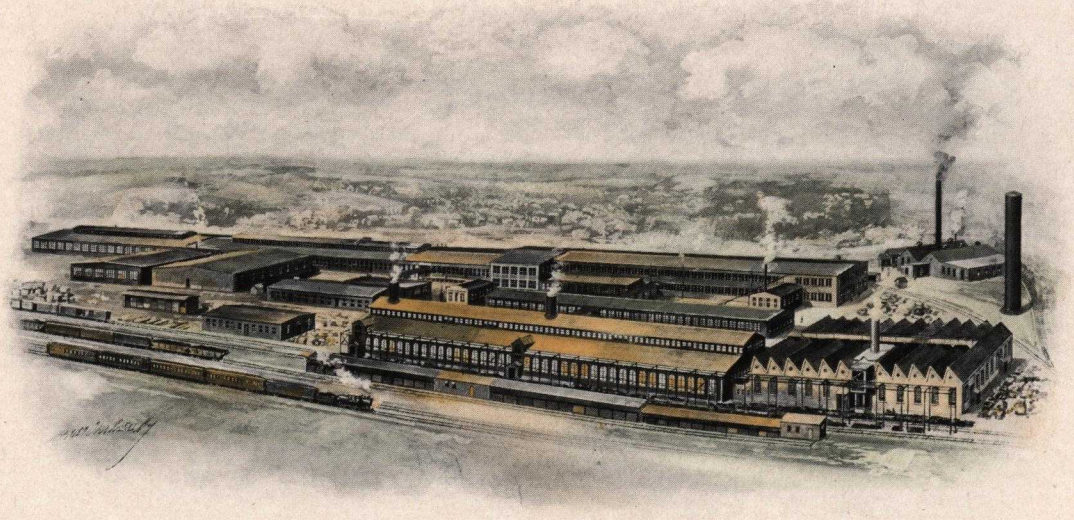
The intending purchaser gets service before he buys, as well as after he buys. A technical staff is prepared to study

his building or his building-plans, make all necessary calculations and give him unbiased advice as to what he needs. The selling staff will co-operate by working out for him the method for achieving the result at least expense.

This service is available for everyone who will request it. It is rendered freely without obligation.

Blank forms will be sent you upon request so that you can furnish us with the required information. Our engineers will then be able to make such calculations and recommendations as are necessary to insure the right equipment.

Every effort will be made to render prompt and most complete advice. Recommendations, when accepted, will be supported by guarantees, so that the user will be assured of satisfaction in every respect.



THE FOUNDRY AT DOVER, NEW JERSEY

FOUR GOOD WAYS

THERE ARE FOUR SOUND METHODS OF HEATING:

Heating by WARM AIR

Heating by STEAM

Heating by VAPOR-VACUUM-PRESSURE

Heating by HOT WATER

Each has its own decided merits and adaptations for specific conditions. The "best" is the one that is best for the particular, individual case. Reliable advice can be obtained only from experts who have no interest in recommending any one system as against any other

The manufacturer or dealer who has only one system to offer, naturally recommends that one alone. The Richardson & Boynton Company manufactures all types of heaters. It has been in business eighty years and its sole interest is to give each customer that system which will give him the best service at the least cost. The most inexpensive and simple system is as important to the firm as the most elaborate

MERITS OF THE FOUR GOOD WAYS
of Heating

WARM AIR

THE initial cost of warm air is the smallest of all systems. Warm air provides healthful heat, for it operates by means of the continual circulation of fresh, warmed air. It is adjustable to mild or severe weather. It is adapted to the usual house. Its cost of operation is low. It is economical of fuel and economical of repairs.

STEAM

Initial cost is more than for a warm air installation, but is less than for other water systems. The pressure and temperature necessary to create steam, make it a powerfully driven heat. It will heat the usual building, and it will heat a whole group of buildings.

VAPOR-VACUUM-PRESSURE

The happy medium between steam and hot water. It is adapted to any type of house. It consumes less coal than either. It is distinguished by the accuracy and ease with which it can be controlled, and thus is equally effective in severe, changeable and mild weather.

HOT WATER

Hot water heating requires larger pipes and radiators than steam. This makes a greater first cost, but assures a comfortable amount of warmth at all times. It operates with little attention, and its whole equipment is very durable. It is eminent for economy in fuel. It will provide for any number of rooms.

We can help you to make the wise choice

WARM AIR HEATING
with
"PERFECT"
FURNACES

YOUR STATE AUTHORITIES *demand proper ventilation in all public buildings. It is equally advisable in the home. Warm air heating assures proper ventilation with comfortable warmth*

THE WARM AIR SYSTEM
for
HYGIENE *and* VENTILATION

BECAUSE warm air heating draws the fresh air continually, day and night, from outside, this form of heating is supreme for hygiene. In a good system, the air is not only renewed all the time, but it is kept in circulation; and modern sanitary science recognizes that circulation is equally important with freshness. It has been demonstrated that air which is quite pure but stagnant is almost as lacking in healthful quality as vitiated air.

The overwhelming value of constant ventilation has long been recognized in the State regulations that govern schools. It is essential for the health of children to have the conditions at least equally good in the home. The warm air system of heating is perfect for ventilation because it is not only steady, but it is accomplished without drafts and without the chills that ensue from admitting outer air directly through windows or other openings. Another advantage is that the warm air system provides a means for bringing the fresh air into the house in a pure condition.

The air is properly moistened by a humidifier, or waterpan, attached to the heater. The In-Doors in winter should be as healthful and as comfortable as the Out-Doors in summer. Warm Air Heating assures that.

"Perfect" Positive Air-circulating Heater

The WARM AIR SYSTEM

THIS system is particularly adapted to the usual house, having complete cellar excavations, so that pipes do not have to carry a long distance. Any size house can be heated, but the unusual size or type may require more than one heater. The extensive system, however, is only proportionately expensive, and still cheaper than any other system.

The warm air system heats a house by means of fresh air drawn continually from outside or from within into a heating system in the lower part of the building. If the system is right, fresh air is drawn strongly into the heating plant, as soon as the furnace begins to function. It is heated quickly and driven up and through the house strongly and quickly; and from the time the furnace is fired to the time when it is allowed to go out, this automatic circulation of air does not stop.

It cannot stop, because it is based on a powerful, positive natural law: that cold air descends and warm air ascends. The value of a warm air heating installation depends on the completeness with which it enables this natural law to operate.

The fresh air enters the house through the heating plant, which is a heater (generally called "furnace" by laymen) completely inclosed in an air-tight iron casing or over-coat. The fresh air pours into the space between these two, flows in a rising current and ascends into the house through large pipes. Each pipe ends at a "register"—an opening in the floor or in the wall near the floor covered with ornamental iron grill-work. Hold your hand over such a register, and you will feel a strong, steady flow of warmth.

The circulation of this warmed fresh air does not cease after it emerges from the register. It continues to rise through the house, thus spreading warmth and at the same time keeping

the air vitalized by the circulation which is so beneficial for health.

It will be observed, in the illustration of the warm air heater on page fourteen, that the incoming fresh air does not at any time come into direct contact with the fire. Therefore, it is obvious that the design of the furnace is all-important.

What the casual eye sees in every heater is a grate, a fire chamber, a smoke pipe and a group of warm air pipes. But these do not make a heater.

For example, the heated gases from the fire may go directly up the chimney. That means that a good proportion of fuel-value is lost. A correct heating design forces the heat to the heating surfaces. In the Richardson & Boynton Company system this makes the out-going gases circulate around the top of the heater, and they cannot escape into the chimney until all available heat-units have been extracted.

Again, if the various parts of a warm-air system are not scientifically proportioned to each other, the system must fail. Thus, a large grate-surface with a small heating surface means a roaring fire in the fire-chamber, but a feeble supply of warmed air in the house, because the incoming fresh air does not touch enough heated surface.

Richardson & Boynton Company "Perfect" Positive Heaters have grooved or flanged surfaces which form channels that *surround* the air with heating surfaces instead of letting it impinge merely on one smooth round surface. This construction adds 3½ times to the heating surface. Exactly the same amount of fire that heats the contracted area of an ordinary heater, heats all this additional surface. It is not a matter of fire, but of using the fire.

The channels divide the flow of air and increase its circulation forcibly by directing it quickly upwards. The moment the fresh air enters into the lower part of the casing, it begins

to acquire heat, and thereafter every part of the system directs it powerfully and steadily into the house.

The inward flow of fresh air is governed by the rapidity with which it can be heated after it enters the system. If it is warmed quickly, there will be a steady volley of warm air through the house.

A good warm air system wastes no heat on the cellar. It is *alive* all the time, driving warm air upward like a blower. It will send more heat through the house with a moderate, economical fire than a poor heating system delivers with the biggest fire that can be built in it. It is not the fire, but the amount of delivered warm air that counts.

Maintenance of an economical fire depends on many considerations. Poor grates waste much coal. A good grate must be close-fitting, so that it will not drop its live fuel or its unburned coal. It must work freely, so that ashes shall not remain to choke the red fire. More important than all is an exact proportionate amount of air-passages. If the air-passages are insufficient, the gases will not ignite completely, though coal will be consumed just the same. This loss often runs as high as 23 per cent with poor grates.

Richardson & Boynton Company "Perfect" Revolving Triangular Ventilated Grates fit closely, shake ashes with light, easy movement, and cut clinkers.

The grate-bars in Richardson & Boynton Company Heaters have powerful back-bone cast in, giving them a solid bottom that prevents warping under heat. They will last.

Another important point in heaters is capacity of ash-pits. Ashes that pile up under the grate cause its destruction by "burning out." In small ash-pits the ashes pile up almost continually. Commodious ash-pits eliminate the trouble and make it easy to remove ashes at proper intervals.

Other advantages of Richardson & Boynton Company Heaters are large feed-doors which make it easy to feed coal

into the fire-chamber. This is more than a mere convenience. A good, evenly laid bed of coals is essential to a live and economical fire. It is practically impossible to feed a fire properly through small feed-doors.

Clean-outs in the tops of the heaters facilitate the cleaning of the radiator system. Patent regulating check dampers control the chimney draft and aid greatly in saving fuel as well as regulating the heat.

THE warm air heating system with such equipment is the most economical of all the good systems. Its initial cost and its cost of installation are the least. There are few parts to wear out or demand repairs. It is easy to operate. The amount of fire can be adjusted promptly to the temperature, and fuel consumption can be reduced whenever weather happens to moderate. In late spring and early autumn a small temporary wood fire will take the chill from a house for a whole day or the greater part of a day.

Under tests, the "Perfect" Positive type of heater in 210 days has burned less coal by from 2 to 4 tons than other types.

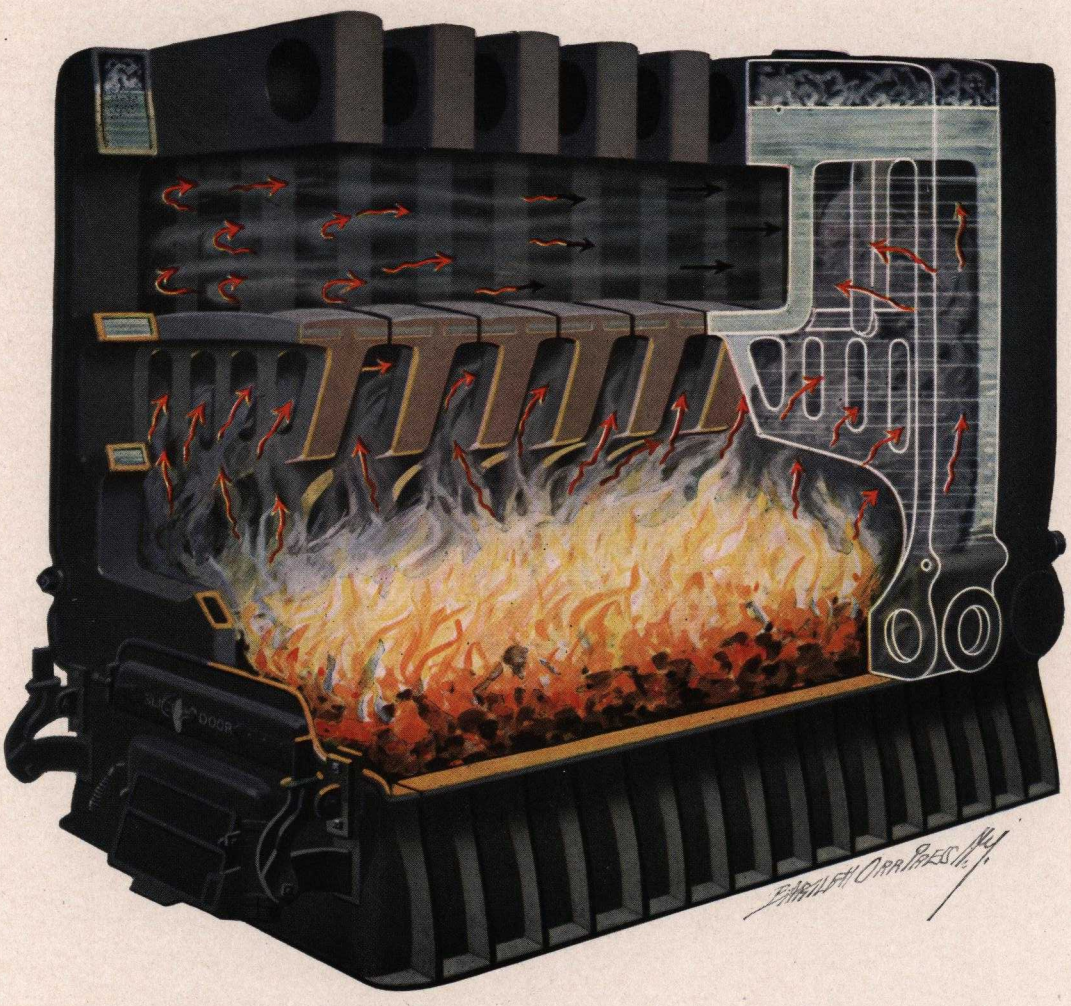
Construction is such that they last. There are many instances of Richardson & Boynton Company heating plants that have not required repair parts during service of 15 and more years.

The modern and efficient construction of the best warm air heaters has necessitated a change in the method of establishing ratings. Heaters of equal fire-pot dimensions are not always of equal capacity.

The power of our heaters is measured by the amount of warm air passing through the registers.

You should know the relative "heat power" rather than fire-pot dimensions of a heater.

LOW PRESSURE STEAM HEATING
with
RICHARDSON
BOILERS



INTERIOR VIEW, RICHARDSON STEAM OR WATER END-FEED BOILER

STEAM HEATING

THE power of a steam boiler, that enables it to drive live steam through long runs of pipe to distant rooms, makes this type of system adaptable to any type of building.

The installation of a steam heating system costs less than a hot water system, largely because the pipes and radiators are smaller and because many of the fittings are more simple. Next to warm air heating, it is the most simple of the four good methods for heating, in installation and operation.

The boiler is the heart of the steam heating system. If the boiler is ample in power and correctly designed to get maximum heat out of the fuel, the steam heating system responds quickly. It heats the pipes and radiators quickly and thus meets conditions when temperatures fall suddenly. Its pressure can be reduced quickly, and this makes it adaptable to conditions when varying weather demands varying degrees of heat or when heat is required only a part of the time.

The fire in a steam heating plant with the proper boiler, can be allowed to "simmer," that is, be kept at a point where it consumes hardly any coal and requires very little attention. It can be kept so indefinitely, and yet at any moment it can be increased to drive steam "full head" through the house.

This responsiveness of the steam heating plant is one of its qualities that make it satisfactory in the early morning, when warmth is particularly desirable. It can be shut down at bedtime to a point just sufficient to prevent the house from chilling; and before it is time for the inmates to arise, it will be sending its heat powerfully through all the rooms.

Another advantage is that it will drive its heat to great distances from the heating plant, making it feasible to place

the boiler at any convenient point in the building, or even to heat several houses from one central point, if desired.

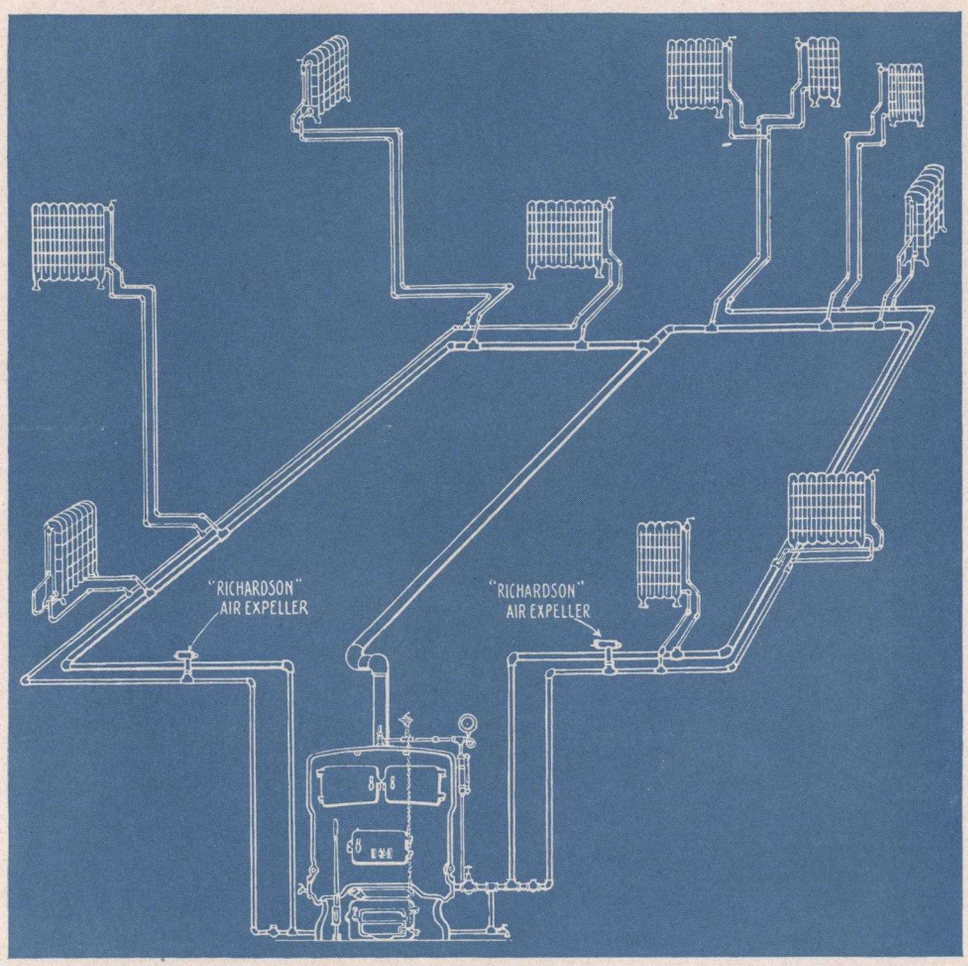
Its principle is simplicity itself. The heating plant consists of a heater (fire-chamber and boiler) which heats the water contained in it. When the water has attained a temperature of 212 degrees, steam is formed. It expands into the pipings and radiators throughout the house, and they radiate the excellent warmth thus attained. As the steam parts with its heat, it condenses into hot water and flows from the radiators back through the pipes to the boiler, because water is heavier than vapor and naturally descends. Thus there is continual circulation.

This makes a correctly installed steam system exceedingly easy to manage. Indeed there really is nothing more to do than with a warm air heating plant, for the boiler controls everything, and is the only equipment needing regular attention.

The boiler attends to its part of the work without much assistance. But it must be a good boiler. It must make steam promptly and furnish enough of it. The water passages must be narrow, in order to make quick, vigorous circulation of steam. Wide water passages make feeble circulation. It must be easy to operate. It must be economical, and it must have the quality for long, satisfactory service.

It must have the largest possible amount of active heating surface over the fire, properly proportioned. Deep fire chambers with corrugated sides, long fire travel for the combustion gases to give up all their heat, high and commodious ash-pits and large feed-doors are standard features of our boilers. Intending purchasers will do well to understand the principle of boiler ratings thoroughly as explained on subsequent pages.

THE *RICHARDSON SYSTEM* *of* VAPOR-VACUUM-PRESSURE HEATING



Typical Layout of Richardson Vapor-Vacuum-Pressure Heating Systems

The VAPOR-VACUUM-PRESSURE SYSTEM

THE Vapor-Vacuum-Pressure System is adapted to the usual home, and to larger buildings. It can be used wherever the steam system can be used.

Water at sea level must be brought to 212 degrees Fahrenheit before it will boil. On a high mountain top it begins to boil before that heat is reached. The difference is due to the fact that there is less atmospheric pressure on the height. Obviously, if the regular atmospheric pressure could be reduced or removed, water would boil anywhere at a lesser temperature than 212 degrees.

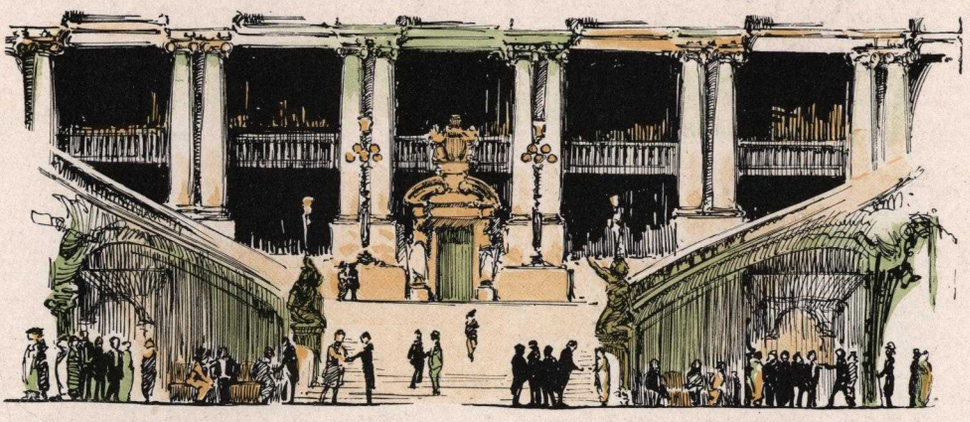
By watching a kettle, you will observe that vapor arises long before the water actually boils. It is hot vapor—not as intensely hot as live steam, but containing a formidable amount of heat. It will warm the air noticeably.

The Richardson Vapor-Vacuum-Pressure Heating System is based on these two natural facts. By a simple method all air-pressure is removed from the whole system of boiler, pipes and radiators.

Installation is not complicated, and fittings do not get out of order.

Owing to this vacuum, vapor circulates through the house as soon as the boiler begins to heat the water. In mild days this vapor-circulation is quite sufficient to warm the house. Letters from satisfied users are unanimous in stating that they have not had to raise steam except in extreme weather, and then only with slight pressure.

When steam is made, it circulates quickly because it has no resistance from air in the pipes and radiators, and this again



THE VAPOR-VACUUM-PRESSURE SYSTEM HEATS ANY BUILDING

makes fuel-economy. The steam is carried to the tops of the radiators, while the air and water, formed when the steam condenses, are conducted away through small return pipes at the bottom. This method eliminates air-valves entirely. In addition, the vacuum eliminates water-hammer and all noise incident to the encounter of steam with air. Noiselessness is one of the valuable features of this system.

Radiators and piping for this system are no larger than those required for steam. It is exceedingly easy to operate, requiring minimum attention. Heat is retained after the fires are banked for the night, and increased heat circulates quickly in the morning as soon as the drafts are opened.

Giving all the benefits of steam at 212 degrees of heat with the coal-consumption of a temperature less than even the 160 degrees required for hot water heating, it stands between these two systems in point of initial cost of installation.

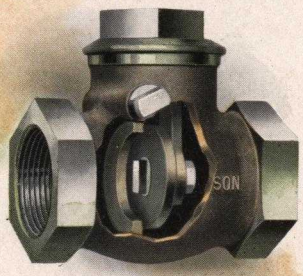
It has the most flexible control of any system. The supply in each radiator can be controlled separately. There are no air-valves to hiss or spout. There is so little to get out of order that it has long life. In mild weather it permits an immense reduction of fire.

THE HARD RUBBER HANDLE of the supply valve is a reliable guide in regulating the supply of vapor in each radiator. The graduations indicate when supply is on and off and when the radiator is one-quarter, one-half, three-quarters or entirely filled with vapor.

THE WATER SEAL BALL CHECK UNION ELBOW which is placed at the bottom of each radiator. It operates automatically with the supply valve, permitting the escape of water and vapor, and preventing the return of either into the radiator.

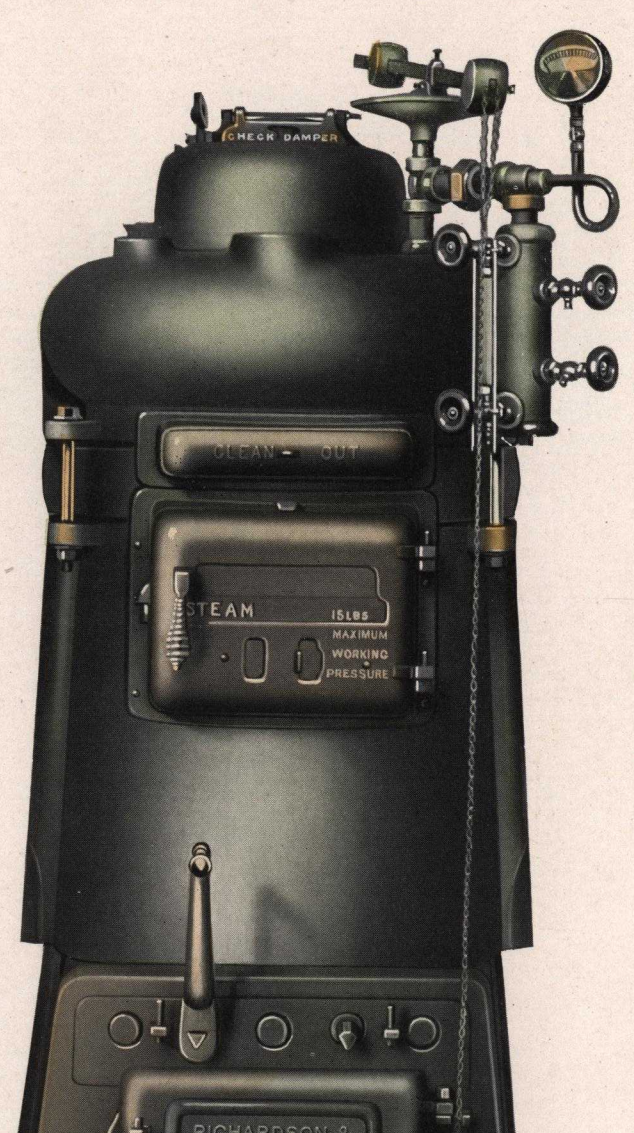
AIR EXPELLER AND VACUUM TRAP which is placed at the end of the air line return pipe near the boiler. It eliminates the necessity for air valves on the radiator as with a steam system. It automatically releases all air from the system, but closes to prevent the escape of vapor or steam and the return of air into the system.

COMPOUND VACUUM AND PRESSURE GAUGE indicates the amount of vacuum and the amount of steam pressure. This is constant proof beside that given by a thermometer in the rooms of the house that the system is functioning.



PACKLESS GRADUATED SUPPLY VALVE, with hard rubber handle, which regulates the amount of vapor in each radiator. It is located at the top of the radiator and manipulated without stooping over.

FIVE GOOD REASONS *for the* ECONOMY AND EASE OF OPERATION *of the* RICHARDSON VAPOR-VACUUM-PRESSURE SYSTEM



THE RICHARDSON ROUND BOILER IS USED FOR STEAM,
VAPOR-VACUUM-PRESSURE AND HOT
WATER HEATING SYSTEMS

HOT WATER HEATING

with

RICHARDSON BOILERS

INTERIOR VIEW OF RICHARDSON ROUND WATER BOILER

HOT WATER HEATING

HOT Water Heating Systems are especially adapted to homes, as compared with office and other buildings. It is somewhat limited in its adaptability, but not within the field of house heating.

This system requires larger pipes and radiators than steam, but the hot water circulates with a lesser degree of heat (160 degrees as against 212 degrees for steam). This makes it an investment that pays dividends in saved fuel.

The water circulates as soon as it is sufficiently heated to expand. The expansion drives it from the boiler through the pipes and into the radiators, which are practically the same in appearance as steam equipment.

The circulation is continual because as the water cools, it passes through return pipes to the boiler to be heated again.

Hot water heating begins as soon as fuel generates effective heat. It has power. It delivers a large percentage of burned coal in actual useful warmth. It is as easy to operate as steam.

It must, however, be a modern installation. Correct boiler rating, adequate pipe and radiator area, contact of large heating surface with the fire and provisions for unimpeded circulation are imperative.

A great advance in this field was achieved with the development of the Richardson Intensified System which has, in effect, created a new and better hot water heating science. It has made possible a reduction of from 10 to 15 per cent in the sizes of pipes and radiators with proportionate reduction of installation-cost. Water is heated more rapidly, and its circulation is remarkably accelerated.

As against the large body of water contained in the ordinary hot water system with its large pipes and radiators, these

smaller pipes, systematically arranged, greatly quicken every part of the operation—heating the water throughout the system more rapidly, increasing its force of motion and maintaining activity.

The intensified system provides a range of temperature from 80 degrees to 200 degrees. Owing to this scope of action, it will operate perfectly with water heated no more than 80 to 100 degrees, thus making it feasible to warm the house with an exceedingly small coal-fire or wood-fire in mild weather.

The Richardson & Boynton Company Hot Water System is so designed as to demand no "fussing." It is easy to keep the fire going, and to control it. A good fire once started under a Richardson boiler will do its work with little further attention beyond removal of ashes and replenishment with fuel.

As in steam heating, the boiler is the heart of these types of heating plant. Fuel-economy and fuel-results depend on its design and construction. The woman who buys a silk dress does not ask: "Is this as cheap as calico?" The difference between boilers is greater and more serious.

A hot water heating system would be considered very expensive for some types of homes. The far-sighted individual always considers initial cost from the point of view of an investment. He is only satisfied when the return proves sound. He demands an adequate assurance of the durability, efficiency, and the power of the system. These features cannot be proven by spoken word, but by the record of years of actual service.

BOILER RATINGS

THE price you pay for a boiler is based upon the rated ability of the boiler. An understanding of the meaning and method of boiler ratings will enable you to purchase intelligently, and wisely. All boilers by all manufacturers are "rated."

Rating is based on tests, evaporating so many pounds of water into steam in a certain given number of hours with so many pounds of coal. It is obvious that the only economical boiler is the one that can make the largest amount of steam with the smallest consumption of coal in a given time. To do this, a boiler must be designed and constructed most scientifically, and an important part of the design is the correct proportion of heating surface to grate area.

The purchaser who has no engineering knowledge cannot ascertain these vital facts about a boiler by merely looking at it. He must depend on the rating that the manufacturer claims for it.

Ratings are technically expressed in square feet of radiation. These indicate the power of the boiler, because they show the amount of pipes and radiators to which the boiler must furnish an adequate warmth. The customer pays according to the rating, and he depends on the rating for assurance as to the service he may expect from the boiler. Therefore it is highly important for him to be sure that the ratings are arrived at properly. If a man buys a boiler "rated" at 2500 square feet, and its actual power is only 1500 square feet, he will not only have paid for 1000 square feet that he did not get, but he will have a permanently inadequate heating supply that will require frequent re-coaling, which means a continual heavy operating cost.

The arithmetical calculation for rating is according to fixed rules; but the determination of coal consumption and other steps in the tests are open to such latitude as individuals may find it expedient to give to themselves. Competitive conditions are rather sharp in the boiler industry, and this fact occasionally tempts manufacturers to over-rate boilers.

Richardson & Boynton Company boiler ratings are guaranteed. They are established on a basis of one firing or coaling period in every 8 hours. This is the actual working condition in a house, and thus the rating denotes the true power of the boiler for the customer's purpose. It allows for burning only 80 per cent of the coal in the eight hours, leaving 20 per cent to kindle the coal which is added for the next period of 8 hours.

A higher alleged rating, or over-rating, could be obtained by merely pushing the coal consumption—that is, re-coaling every 6 hours, or every 4 hours, instead of only every 8 hours.

Richardson & Boynton Company boiler ratings, reached by careful factory tests on each boiler, represent actual power and not merely a technical "trade-definition." There are boilers of the same given grate area and the same general dimensions as ours that are "rated" higher. The customers who buy our boilers with our ratings get what they pay for, and the boilers will deliver the heat that the ratings call for.

You cannot heat your house with ratings, but only with heat that is delivered. You can secure that heat economically with a correctly-rated boiler, or expensively with an over-rated, and consequently cheaper boiler.

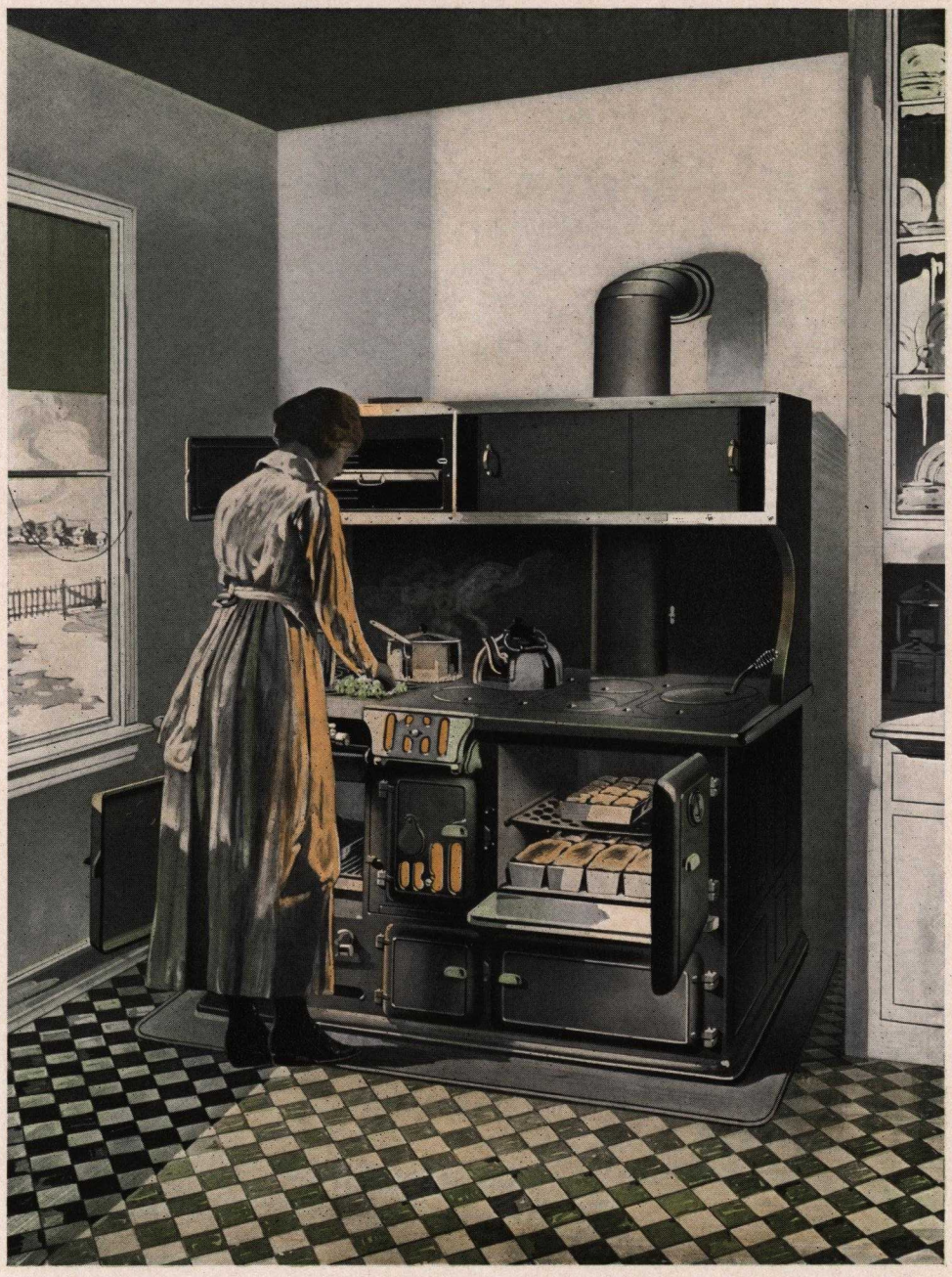
"PERFECT" RANGES

for

COAL AND WOOD

also

COAL AND GAS IN COMBINATION



Where Home Happiness Originates

COOKING RANGES

THE COOKING RANGE IS NOT A STOVE

IT is an apparatus. Baking, roasting, stewing and other forms of cookery are chemistry and like all chemical processes they require precise degrees of heat. Some sort of a fire can be built in any sort of a cook-stove, and it will conduct some amount of heat to food; but a good cooking range is an adjustable apparatus that maintains definite quantity and quality of fire and produces definite temperatures that may be varied to suit the purpose.

Many a cook is blamed for poor cooking when the real criminal is a poor cooking range. A poor range is not cheap. It robs its owner every day.

Aside from the crime of ruining expensive food, the poor range is a tyrant, making the kitchen a place of drudgery. Every part of it demands extra and vexatious labors—the fire-box, the ash-pit, the flues and dampers, and the oven. It breeds discontent in households that like elaborate meals, and it makes simple living impossible, for simple food supremely demands good cooking.

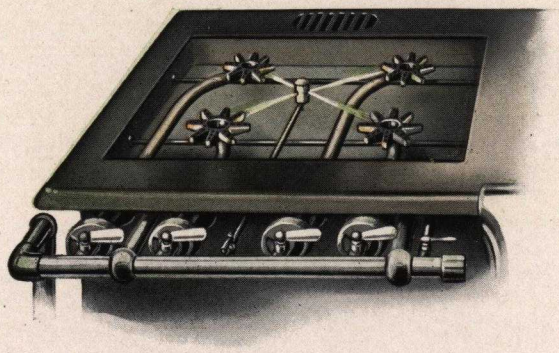
Cooking ranges in one form or another have been used for so many years, developing from the first crude hearths and stoves, that it would seem natural that every modern range should be satisfactorily designed and constructed. But the correct range requires certain weights of material, certain large proportions of area and many large and small items of painstaking construction. The stress of competition tempts toward cutting down a little here, contracting a little there, and eliminating expensive items of construction, even though they are actually vital.

RICHARDSON "PERFECT" GAS AND COAL RANGE
Single Oven Type

The preponderance of unsatisfactory ranges is a big factor in making housekeeping a burden. Whenever women discuss domestic affairs, they express envy of the one who can boast that her range has a good oven that never spoils what is put into it.

The necessary points of a good range are not such as can be discovered by simply looking at one in a shop. An inadequate range may be quite good-looking. A few square inches more or less in the fire-box may not be noticeable. It is impossible to find out, except by complex scientific measurements, whether the flues are sufficiently ample to distribute heat properly around the oven. The strength of grate-bars, their area of ventilation and other such matters remain to be discovered by actual trial.

The Richardson & Boynton Company has made cooking apparatus for 80 years. It is needless to remark that it no longer manufactures the ranges which were considered adequate 80 years ago. But the experience of those 80 years is in the modern ranges that the company makes today, and the old principle of putting into a range everything that it needs for efficiency is exactly the same today as it was in the beginning.



ILLUSTRATING THE SELF-STARTING LIGHTER—NO MATCHES

RICHARDSON "PERFECT" GAS AND COAL RANGE
Double Oven Type

There are many American families that have been "brought up" on Richardson & Boynton Company ranges.

Lift the lid over a fire-box in a Richardson & Boynton Company range and you will find it capacious. You can start a real fire in it without packing the kindling, and after it is started, there is space enough to permit a sufficient supply of coal for maintenance. It will require feeding only when the original fuel has thoroughly done its work.

Shake the grate and you will find it acts smoothly, responding to a very slight motion. Fitted accurately, they remove the fine ashes and not the good coals. If there are clinkers, it is unnecessary to exert the violence which often opens poor grate-bars wide and dumps all or the better part of a fire. There are clinker-cutting edges that break up the mass, and send it readily into the ash-pit.

Observe the stove-pipe. You will find that there is little heat escaping into it. The surfaces of the range, inside and out, are getting it as they should. All the gases and other waste products of the fire are compelled to travel over and through the interior parts of the range, back and forth, until every heat-value has been given up by them to the oven. Not until then can they escape into the chimney.

Fuel-economy is attained by all these refinements; but it cannot be attained by "cheap" construction. To obtain extensive fire-travel, there must be unusually large passages, unusually large surfaces exposed for heating, and every part of the range must be positively and permanently gas-tight.

To make food-economy, all parts must be proportioned scientifically in relation to the rest. It must be possible to get the desired temperature in the oven and to maintain it at unvarying point as long as necessary. The oven must heat evenly. From the unevenly heated oven comes food partly underdone or partly burned or both.

RICHARDSON "PERFECT" COAL RANGE
Single Oven Type

These ranges are made in all the sizes needed for any kitchen. They can be arranged for any fuel, wood or coal, and with gas in combination. Besides furnishing the private house, the Richardson & Boynton Company has a large line of various sizes and kinds for hotels and others requiring capacity and dimension.

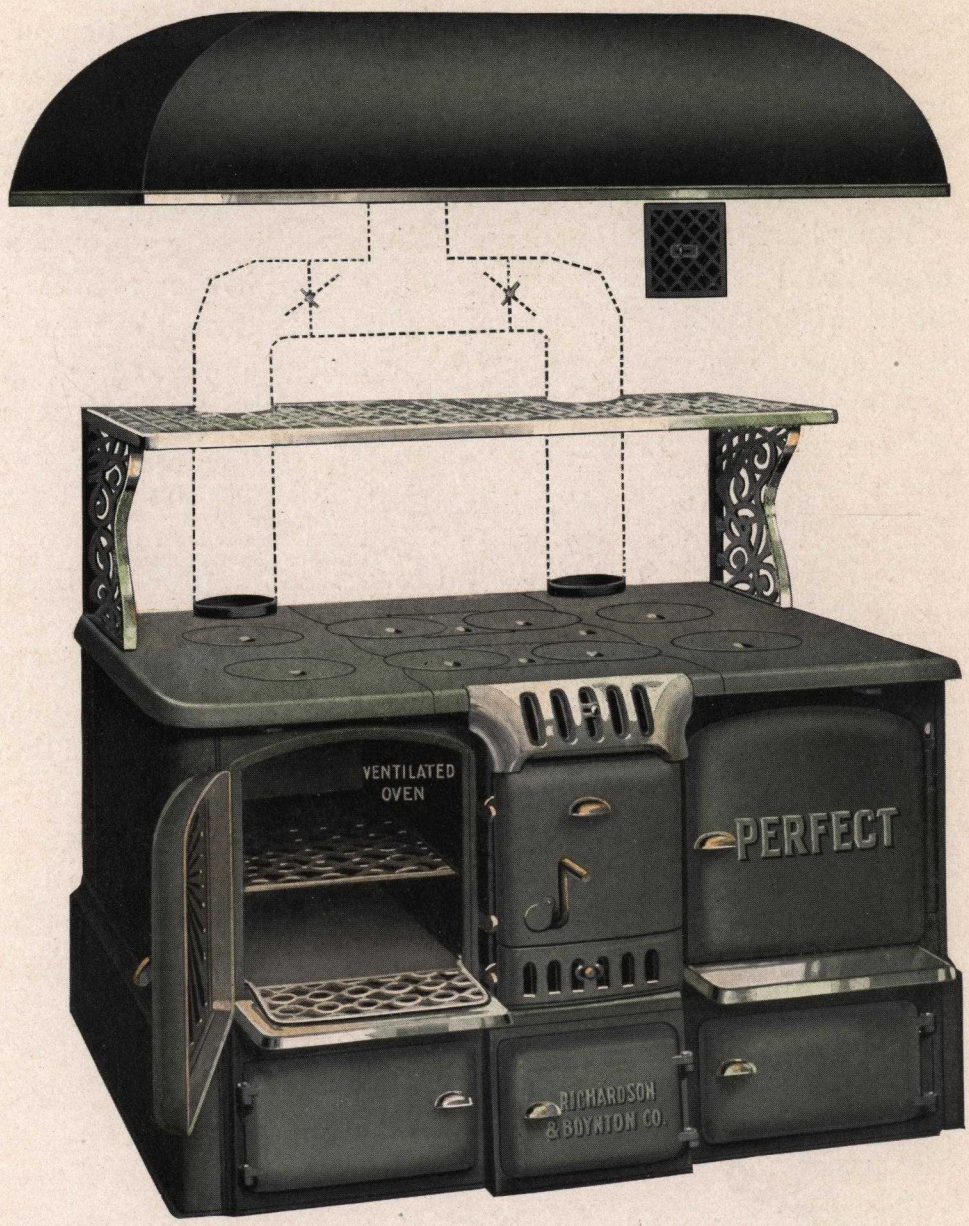
The "Perfect" Coal and Gas Ranges are true units, not simply coal ranges with gas attachments. When manufacturers of ranges with gas attachments first turned out these devices, the ovens were contracted in dimension, and the gas cooking surface was small, though at the same time the size of the whole range was enormous and extremely inconvenient. The "Perfect" complete one-unit coal and gas ranges have a gas section which is as large as, and will do as much work as the coal section. They have the largest baking and broiling ovens and the largest top cooking surface manufactured.

They employ gas and coal for fuel, either separately or both at the same time, their capacity being so great that one may broil, roast or bake with gas or coal or both at will, while the entire top of the range is available for cooking.

They do all kinds of cooking and baking perfectly. They make it possible to produce meals quickly. They lighten the work in the kitchen, and make it a comfortable place, for they provide warmth in the winter and leave it cool in summer. They are economical of fuel.

The "Perfect" Cast-iron Double Oven Ranges are fitted with wrought-iron ventilated removable ovens. They are admirable for baking, and meals cooked in these ovens retain their juices and flavors deliciously.

The "Perfect" Steel Double Oven Ranges are intended for small hotels or restaurants where a great amount of cooking and baking is necessary. They provide large quantities of hot water with waterbacks having a capacity of 60 to 100



RICHARDSON "PERFECT" COAL RANGE

Double Oven Type

RICHARDSON "PERFECT ROYAL" COAL RANGE

Single Oven Type

gallons. They have a very durable top surface which will withstand the weight of heavy pots and kettles.

Some Features of "PERFECT" *Ranges*

They have every known convenience for saving work. Note, for example, such a point as the foot attachment for opening the oven door without using the hand. It is a little point, but when both hands are needed for holding a pan, its value is great.

The flues are large, and thus not only extract all the heat from the fuel, but distribute it evenly around the oven.

Ovens are of maximum capacity, and are fitted with racks that can be adjusted to any height.

All our ranges are fitted with removable grates, duplex or flat, for coal or wood fuel, which can be taken out without disturbing the many parts of the fire-box.

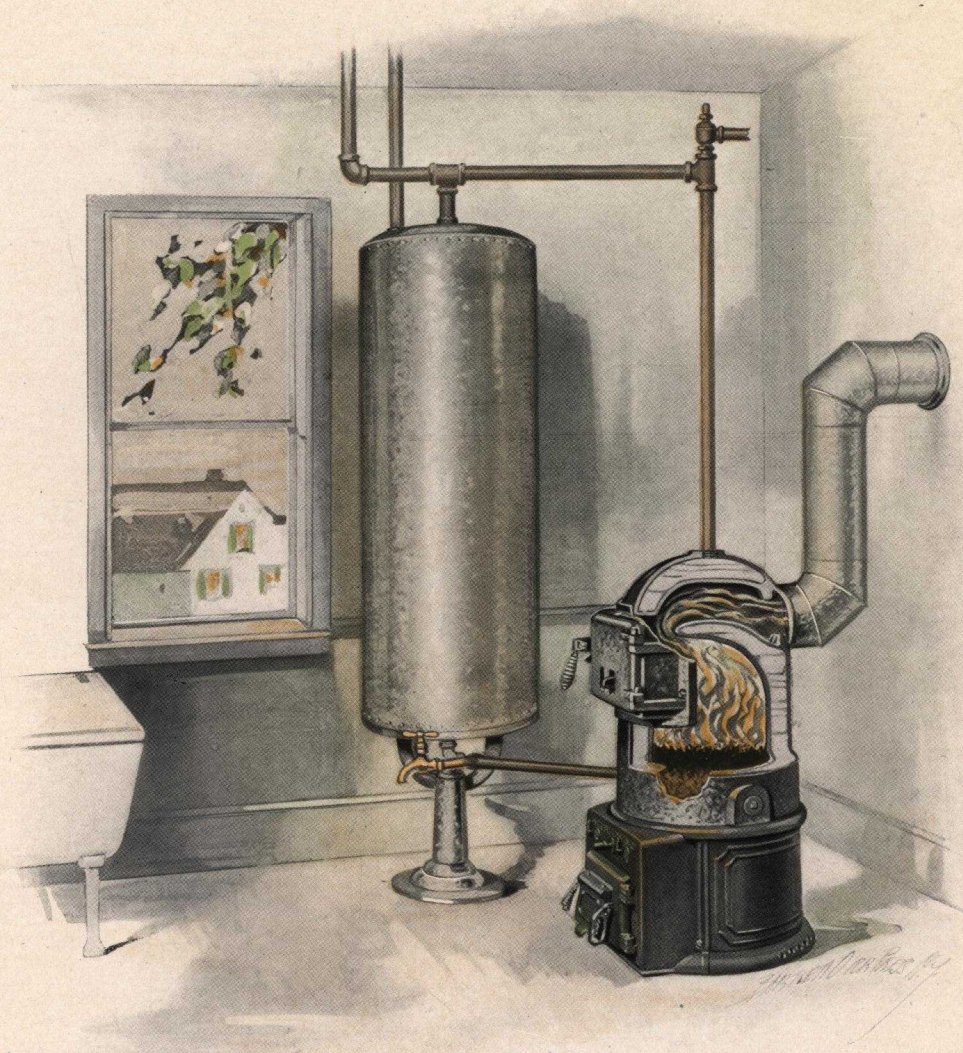
These "Perfect" triangular, revolving, ventilating grate-bars insure a clean bright fire, and it is easy to shake them.

Powerful waterbacks provide a plentiful supply of hot water. Waterbacks have a capacity of from 30 to 100 gallons of water.

Well blackened and highly polished, and they are without unnecessary dirt-collecting ornaments, so they present a neat and attractive appearance at all times.

They please the cook

LAUNDRY, IRON *and* WATER HEATERS



CLEAN HOT WATER IS NO LONGER CONSIDERED A LUXURY

LAUNDRY *and* TANK HOT WATER HEATERS

ADEQUATE hot water supply is no longer classed as a mere luxury. Our sensible modern standard of comfortable living recognizes it as a necessity. The Richardson & Boynton Company, having found by experience how a modern family can be best served in a simple way, has evolved the laundry hot water heaters which give a supply of clean hot water at any time when desired to add to or replace the kitchen hot water supply.

They will supply enough hot water constantly available for the kitchen, bathrooms and laundry. They are a separate unit, and dependent only upon a water supply. The large city home, the ordinary sized home and the summer cottage or bungalow are equally well served.

They are a convenience and a household economy every day in the week. On "Blue Monday" they are a blessing. The kitchen range is not called upon to heat water and irons. The kitchen is kept free from the whole acute discomfort of wash-day.

They burn coal or wood, and their fuel-consumption is so small that they are far cheaper than gas. Fire can be economically maintained in them the week around where desirable, or they can be started up whenever needed, for it is an easy matter to light fires in them. Once started, they need attention only at convenient intervals with a minimum of work, for deep ash-pits and triangular revolving grate bars simplify every manipulation.

They can be set up out of the way, in the cellar, laundry room or any other place, so that they do not intrude on the

premises used for living purposes. Washing can thus be done without interfering with the normal work of the kitchen.

FLAT IRON AND WATER HEATER WITH GALVOXIDE WATER SECTION

They save the necessity for fire in the kitchen range.

The various kinds made by us form a very complete line for any purpose, large or small. Their capacity ranges from 40 to 800 gallons of water. They can be furnished to heat four irons or up to nine irons.

For regions where ingredients in the water cause rust and discoloration by contact with hot iron surfaces, these heaters are fitted with the Galvoxide water section. The Galvoxide process consists of six separate treatments which form a perfect protective coat over the cast iron, thus absolutely assuring clear, clean hot water. They are a little more expensive, but they eliminate all danger to material that is in the wash, for laundry tubs and their contents are not stained when these heaters are used. Their cost is only one-fifth of the cost of brass water sections which otherwise would be necessary.

A few shovelfuls of small coal per day will maintain 80 to 100 gallons of hot water all the time. They are made in sizes and kinds for all houses, apartments, hotels, laundries, garages, stables and public buildings.

SERVICE

OUR Consultation Department is at the service of intending purchasers. We will gladly discuss personally or by mail all phases of your special problem, and always from the view-point of suggesting that system which shall give thorough service with the utmost economy. In our offices are specimens of all types of heaters and cooking apparatus, arranged on display for convenient and effective examination, and representatives will explain them thoroughly.

Calculations as to house-area to be heated, size and amount of equipment, etc., will be made for any individual customer by our technical department, thus assuring him of scientifically ascertained equipment. This will enable him to secure accurate estimates from dealers.

For those who are not able to visit our offices, we have technical books and other printed matter which we shall be glad to send on request.

The sale of our product to you is the beginning rather than the end of our relationship.

PUTTERING

THE great essential for the comfort to be derived from a heating system and a kitchen equipment is that they shall function as nearly as possible by themselves. Every ill-devised or poorly constructed one entails endless puttering.

Puttering does not merely vex. It costs money.

Puttering means irregularity of heat.

Irregularity of heat means waste of coal.

Puttering means dirt.

Puttering means breakages.

Puttering and comfort cannot exist together.

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